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MX23L12811

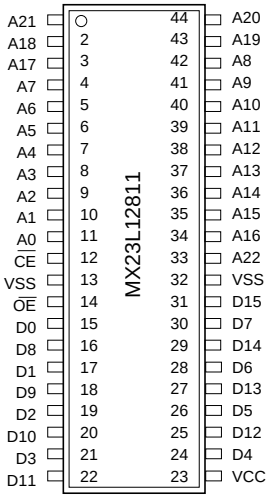
128M-BIT (8M x 16) MASK ROM WITH PAGE MODE (SOP ONLY)

FEATURES

- Bit organization
  - 8M x 16 (word mode)
- Fast access time
  - Random access: 90ns (max.)
  - Page access: 25ns (max.)
- Page size
  - 8 words per page
- Current
  - Operating:50mA
  - Standby:15uA
- Supply voltage
  - 3.0 ~ 3.6V
- Package
  - 44 pin SOP (500mil)
- Temperature
  - 0~70℃

PIN CONFIGURATION

44 SOP(For Word Mode Only)



PIN DESCRIPTION

Symbol	Pin Function
A0~A22	Address Inputs
D0~D15	Data Outputs
$\overline{CE}$	Chip Enable Input
$\overline{OE}$	Output Enable Input
VCC	Power Supply Pin
VSS	Ground Pin
NC	No Connection

ORDER INFORMATION

Part No.	Access Time	Page Time	Package	Note
MX23L12811MC-12	130ns	50ns	44 pin SOP	Voltage 3.2~3.6V
MX23L12811MC-10	100ns	30ns	44 pin SOP	
MX23L12811MC-90	90ns	25ns	44 pin SOP	

ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Ratings
Voltage on any Pin Relative to VSS	VIN	-1.3V to VCC+2.0V (Note)
Ambient Operating Temperature	Topr	0℃ to 70℃
Storage Temperature	Tstg	-65℃ to 125℃

Note: Minimum DC voltage on input or I/O pins is -0.5V. During voltage transitions, inputs may undershoot VSS to -1.3V for periods of up to 20ns. Maximum DC voltage on input or I/O pins is VCC+0.5V. During voltage transitions, inputs may overshoot VCC to VCC+2.0V for periods of up to 20ns.

DC CHARACTERISTICS (Ta = 0℃ ~ 70℃, VCC = 3.0~3.6V)

Item	Symbol	MIN.	MAX.	Conditions
Output High Voltage	VOH	2.4V	-	IOH = -0.4mA
Output Low Voltage	VOL	-	0.4V	IOL = 1.6mA
Input High Voltage	VIH	2.2V	VCC+0.3V	
Input Low Voltage	VIL	-0.3V	0.2 x VCC	
Input Leakage Current	ILI	-	5uA	0V, VCC
Output Leakage Current	ILO	-	5uA	0V, VCC
Operating Current	ICC1	-	50mA	f=5MHz, all outputs open
Standby Current (TTL)	ISTB1	-	1mA	$\overline{CE}$ = VIH
Standby Current (CMOS)	ISTB2	-	15uA	$\overline{CE}$>VCC-0.2V
Input Capacitance	CIN	-	10pF	Ta = 25℃, f = 1MHZ
Output Capacitance	COUT	-	10pF	Ta = 25℃, f = 1MHZ

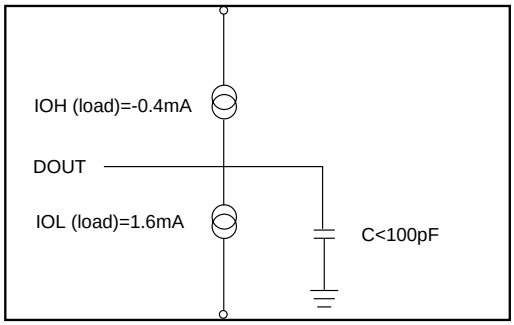
AC CHARACTERISTICS (Ta = 0℃ ~ 70℃, VCC = 3.0~3.6V)

Item	Symbol	23L12811-90		23L12811-10		23L12811-12*	
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
Read Cycle Time	tRC	90ns	-	100ns	-	130ns	-
Address Access Time	tAA	-	90ns	-	100ns	-	130ns
Chip Enable Access Time	tACE	-	90ns	-	100ns	-	130ns
Page Mode Access Time	tPA	-	25ns	-	30ns	-	50ns
Output Enable Time	tOE	-	25ns	-	30ns	-	50ns
Output Hold After Address	tOH	0ns	-	0ns	-	0ns	-
Output High Z Delay	tHZ	-	20ns	-	20ns	-	20ns

Note:
1. Output high-impedance delay (tHZ) is measured from $\overline{OE}$ or $\overline{CE}$ going high, and this parameter guaranteed by design over the full voltage and temperature operating range - not tested.
2. MX23L12811-12 VCC=3.2~3.6V.

AC Test Conditions

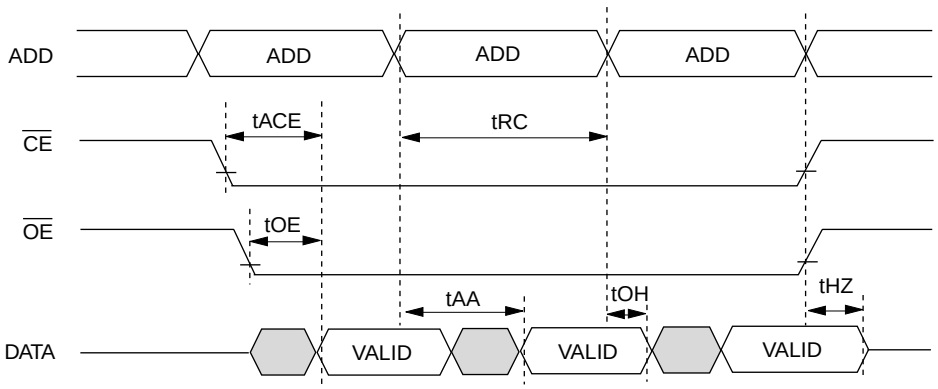
Input Pulse Levels	0.4V~2.4V
Input Rise and Fall Times	10ns
Input Timing Level	1.4V
Output Timing Level	1.4V
Output Load	See Figure



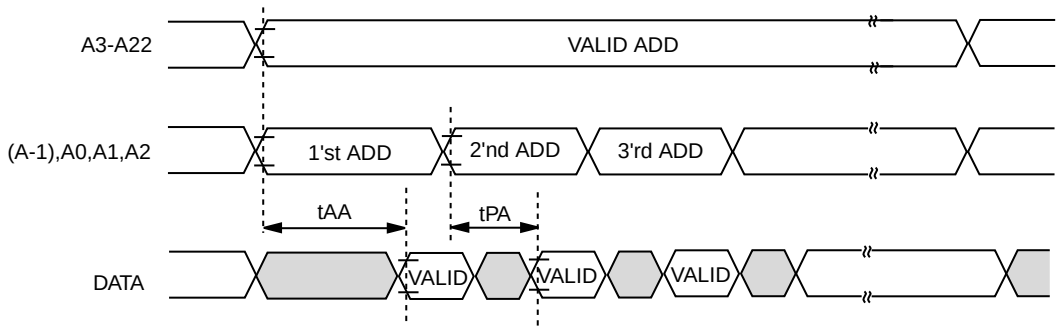
Note:No output loading is present in tester load board.
Active loading is used and under software programming control.
Output loading capacitance includes load board's and all stray capacitance.

TIMING DIAGRAM

RANDOM READ

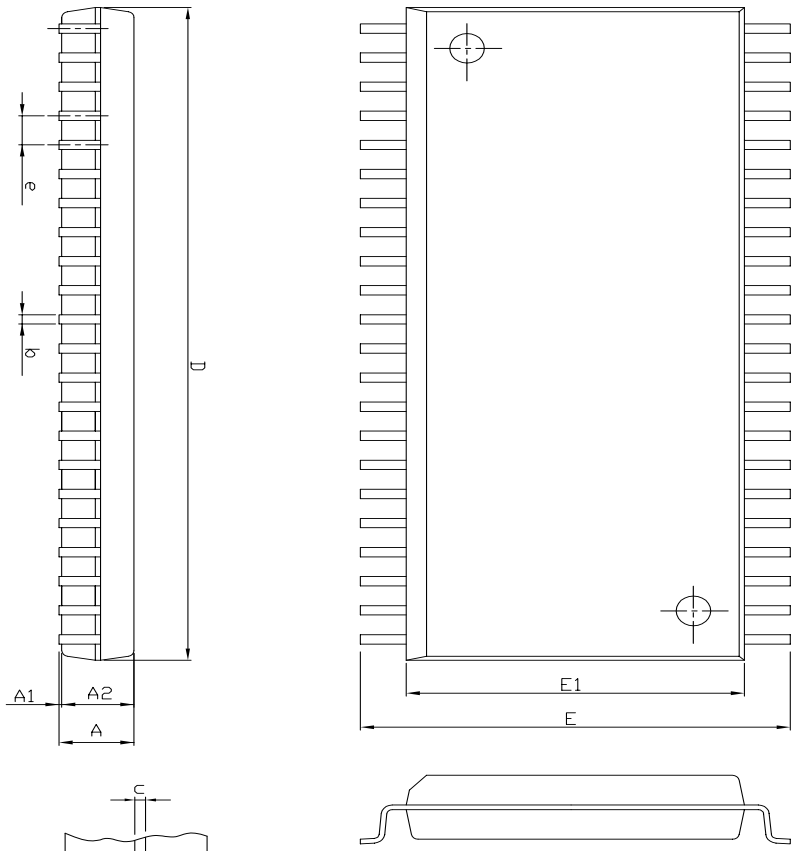


PAGE READ



PACKAGE INFORMATION

44-PIN PLASTIC SOP



Symbol	Dimension in mm (Base)			Dimension in inch (Ref.)		
	Min	Nom	Max	Min	Nom	Max
A	—	—	3.00	—	—	0.118
A1	0.10	—	—	0.004	—	—
A2	2.57	2.69	2.82	0.101	0.106	0.111
b		0.41REF			0.016 REF	
c		0.20 REF			0.008 REF	
D	28.37	28.50	28.63	1.117	1.122	1.127
E	15.77	16.03	16.28	0.621	0.631	0.641
E1	12.47	12.60	12.73	0.491	0.496	0.501
e		1.27 REF			0.050 REF	
L	0.58	0.79	0.99	0.023	0.031	0.039
θ	—	5°	—	—	5°	—
JEDEC						

MXIC 旺宏電子股份有限公司 Macronix International Co., Ltd.			DWG. NO. 6110-0207
TITLE PACKAGE OUTLINE FOR SOP 44L (500 MIL)			TOLERANCE .X ±. .XX ±.01 .XXX±.002 ANGLE ROUGHNESS
DRAWN	APPROVED	DATE	UNIT
C.L.Chiang	Dennis Chang	05-03-'01	INCH
			REVISION 2

REVISION HISTORY

Revision #	Description	Page	Date
1.1	Add Order Information	P1	JUL/27/2000
1.2	Modify Order Information/AC Characteristics MX23L12811MC-12-->13	P1,2	SEP/07/2000
1.3	Add Order Information--MX23L12811MC-12	P1,2	SEP/21/2000
1.4	Delete Order Information--MX23L12811MC-13	P1,2	OCT/03/2000
1.5	Modify Current Operating:60mA-->40mA	P1	DEC/12/2000
	Modify ICC1:60mA-->40mA, f=5MHz, all outputs open	P2	
	Delete ICC2	P2	
1.6	Modify Current Operating:40mA-->50mA	P1	DEC/14/2000
	Modify ICC1:40mA-->50mA	P2	
1.7	Add 90ns access time	P1,2	AUG/22/2001
	Change Supply voltage:3.4V±0.2-->3.0~3.6V	P1,2	
	Add Temperature:0~70℃	P1	
	Change Input Pulse Levels:0.3V~3.0V-->0.4V~2.4V	P3	
1.8	Add 100ns access time	P1,2	AUG/28/2001
1.9	Modify MX23L12811MC-12 speed-->130ns; Supply voltage-->3.2~3.6V	P1,2	SEP/19/2001

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